LIST OF CONTENTS

NUMBER 1

D.G. Naberejnev 1 A model that takes into account the influence of chemical binding on neutron scattering in a resonance

S.R. Malkawi and **N. Ahmad** 25 Solution of the neutron spectrum adjustment problem in a typical MTR type research reactor

E. Gültekin, M. Bostan, M.N. Erduran, M. Subaşi and **M. Şirin** 53 Cross-section measurements for short-lived isotopes of ^{46}Ti, ^{75}As and ^{92}Mo at the neutron energies from 13.6 to 14.9 MeV

E.A. Bondarchenko, Y.N. Pepyolyshev and **A.K. Popov** 63 Influence of automatic regulator parameters on power transition processes of the IBR-2 reactor

Technical note

S. Mehedinteanu 79 An application of the new way to prevent core melting in pressure tube reactors (CANDU type)

89 Book review

NUMBER 2

J. Alvarez-Ramirez, H. Puebla and **G. Espinosa** 93 A cascade control strategy for a space nuclear reactor system

A.H. El-Kateb 113 Determination of γ-spectrometric parameters for some chloride salt solutions

T. Jevremovic, J. Vujic and **K. Tsuda** 125 ANEMONA — a neutron transport code for general geometry reactor assemblies based on the method of characteristics and *R*-function solid modeler

Technical notes

A. Waris and **H. Sekimoto** 153 Basic study on characteristics of some important equilibrium fuel cycles of PWR

D.H. Kim, J.K. Kim and **H. Choi** 169 A generalized perturbation theory program for CANDU core analysis

NUMBER 3

T.E. Valentine 191 Evaluation of prompt fission gamma rays for use in simulating nuclear safeguard measurements

S. Şahin, V. Özceyhan and **H. Yapici** 203 Proliferation hardening and power flattening of a thorium fusion breeder with triple mixed oxide fuel

P. Forslund, E. Müller and **S.-Ö. Lindahl** 225 Investigation of intranodal depletion effects

S.Y. Jiang, L.L. Gao, Y.J. Zhang and **J.H. Bo** 251 Experimental research on the gravity-driven boron injection system for a 200 MW nuclear heating reactor

Technical notes

T.H. Anh and **T.Q. Dung** 265 Evaluation of performance of gamma tomographic technique for correcting lump effect in radioactive waste assay

A. El-Sayed Abdo and **E. Amin** 275 Distribution of temperature rise in biological shield due to thermal neutrons

285 Book review

NUMBER 4

P. Baeten, J. Paepen, K. van der Meer and **H.A. Abderrahim** 287 Absolute measurement of β_{eff} and l on weapon-grade MOX fuel at the VENUS critical facility by means of the RAPJA technique

M.S. Milgram 297 On the use of antithetic variates in particle transport problems

K.H. Bae, H.C. Kim, M.H. Chang and **S.K. Sim** 333 Safety evaluation of the inherent and passive safety features of the smart design

Technical notes

N.G. Sjöstrand 351 On an alternative way to treat highly anisotropic scattering

M.M.R. Williams 357 Criticality conditions in a multiplying slab with an infinite reflector: an old approach rediscovered

M.R. Zamir 365 General description of KIANA-1 structure and its application for fuel rod behavior

E. Massoud, O.H. Sallam and **E. Amin** 375 Criticality safety of the ET-RR-1 new spent fuel storage pool

Letters to the Editor

W.J.M. de Kruijf 385 Comments on "Computational problems in the calculation of temperature effects for heterogeneous nuclear reactor unit cells" (Goltsev et al., 2000. *Annals of Nuclear Energy* 27 (2), 175183)

A.O. Goltsev, V.D. Davidenko, V.F. Tsibulsky and **A.A. Lekomtsev** 389 Comments to the paper "Computational problems in the calculation of temperature effects for heterogeneous nuclear reactor unit cells" (Goltsev et al., 2000. *Annals of Nuclear Energy* 27 (2), 175183)

W.J.M. de Kruijf 395 Further comments on "Computational problems in the calculation of temperature effects for heterogeneous nuclear reactor unit cells" (Goltsev et al., 2000. *Annals of Nuclear Energy* 27 (2), 175183)

NUMBER 5

E. Vogt 399 George Michael Volkoff (1914–2000)

R. Sanchez and **S. Santandrea** 401 On pseudoreciprocity

G. Vladuca and **A. Tudora** 419 Improved Los Alamos model applied to the neutron induced fission of ^{235}U and ^{237}Np

B. Akkus, M.N. Erduran and **M. Subasi** 437 Measurement of $^{3}H(d,n)^{4}He$ neutron spectrum by means of time-of-flight technique for a fast neutron generator

M.B. Setiawan, A. Kitamoto and **A. Taniguchi** 443 Evaluation on transmutation performance of minor actinides with high-flux BWR

C.L. Barrett and **E.W. Larsen** 457 A variationally-based variance reduction method for Monte Carlo neutron transport calculations

G.D. Spriggs, R.D. Busch and **J.M. Campbell** 477 Calculation of the delayed neutron effectiveness factor using ratios of k-eigenvalues

Technical notes

J.L. François, J.L. Esquivel, C. Cortés, J. Esquivias and **C. Martín del Campo** 489 Validation of a methodology for fuel management analysis of Laguna Verde nuclear power plant

S.L.L. Souto, M.T.V.M. Barreto and **C. de Oliveira Graça** 503 Experimental hydraulic study of a fluidized-bed reactor

S.D. Nolen and **G.D. Spriggs** 509 Estimation of the neutron chain-length distribution in subcritical systems using a point Monte Carlo code

NUMBER 6

G.C. Bakos 513 Direct energy generation and energy conservation in radiation shielding facilities

K. Drozdowicz, B. Gabańska, A. Igielski, E. Krynicka and **U. Woźnicka** 519 A pulsed measurement of the effective thermal neutron absorption cross-section of a heterogeneous medium

A.B. Smith and **A. Fessler** 531 Neutrons and antimony: measurement, interpretation and evaluation

K.Y. Sohn, J.W. Yang and **C.S. Kang** 553 Assimilation of public opinions in nuclear decision-making using risk perception

G. Verdú and **D. Ginestar** 565 Neutronic signal conditioning using a singular system analysis

H.A. Ozgener and **B. Ozgener** 585 A multi-region boundary element method for multigroup neutron diffusion calculations

NUMBER 7

M.M.R. Williams 617 Editorial — Nuclear reactor theory in Canada 1943–1946

P.R. Wallace 619 Boundary conditions at thin absorbing shells and plates. I

G. Espinosa-Paredes 659 Theoretical derivation of the interaction effects with an eccentric cell model and void fraction propagation in two-phase flow

G. Vladuca and **A. Tudora** 689 Improved Los Alamos model applied to the neutron induced fission of ^{239}Pu and ^{240}Pu and to the spontaneous fission of Pu isotopes

O.P. Joneja, M. Plaschy, F. Jatuff, A. Lüthi, M. Murphy, R. Seiler and **R. Chawla** 701 Validation of an MCNP4B whole-reactor model for LWR-PROTEUS using ENDF/B-V, ENDF/B-VI and JEF-2.2 cross-section libraries

A. Sharma 715 Spherical harmonics moments of neutron angular flux for spherically symmetric systems

NUMBER 8

T. Kai, K. Kobayashi, S. Yamamoto, H.-J. Cho, Y. Fujita, I. Kimura, Y. Ohkawachi and **T. Wakabayashi** 723 Measurements of neutron induced fission cross-section for ^{242m}Am from 0.003 eV to 10 keV using lead slowing-down spectrometer, thermal neutron facility and time-of-flight method

L. Wenfeng, L. Zhengpei, L. Fu and **W. Yaqi** 741 The three-dimensional power distribution control in load following of the heating reactor

M.M.R. Williams 755 On some one-speed neutron transport problems revisited and reformulated

M. Marseguerra, E. Patelli and **E. Zio** 777 Groundwater contaminant transport in presence of colloids I. A stochastic nonlinear model and parameter identification

M. Dahmani, A.M. Baudron, J.J. Lautard and **L. Erradi** 805 A 3D nodal mixed dual method for nuclear reactor kinetics with improved quasistatic model and a semi-implicit scheme to solve the precursor equations

Technical note

C.E. Siewert 825 The critical problem with high-order anisotropic scattering

NUMBER 9

K. Tsujimoto, T. Iwasaki, N. Hirakawa, T. Osugi, S. Okajima and **M. Andoh** 831 Improvement of reactivity coefficients of metallic fuel LMFBR by adding moderating material

S. Mittag, S. Kliem, F.P. Weiß, R. Kyrki-Rajamäki, H. Hämäläinen, S. Langenbuch, S. Danilin, J. Hadek, G. Hegyi, A. Kuchin and **D. Panayotov** 857 Validation of coupled neutron kinetic/thermal–hydraulic codes. Part 1: Analysis of a VVER-1000 transient (Balakovo-4)

M. Kelly and **M.C. Thorne** 875 An approach to multi-attribute utility analysis under parametric uncertainty

G. Chiba, M. Tsuji and **Y. Shimazu** 895 A hierarchical domain decomposition boundary element method with a higher order polynomial expansion for solving 2-D multiregion neutron diffusion equations

G. Quinteiro 913 Study of kinetic parameters in the RA-4 reactor by means of computational modeling and neutron noise measurements

Technical note

A.E. Aboanber 923 Numerical solution of the chain model of fission product nuclides. Effect on the reactivity of the reactor

935 Book review

NUMBER 10

T. Miura, M. Baba, M. Ibaraki, T. Win, T. Sanami and **Y. Hirasawa** 937 Measurements of double-differential neutron emission cross-sections of ^{238}U and ^{232}Th for 2.6, 3.6 and 11.8 MeV neutrons

Z. Shi, Y. Tamura and **T. Ozaki** 953 Monitoring the stability of BWR oscillation by nonlinear time series modeling

I.S. Kim, R.-E. Grini and **S. Nilsen** 967 Implementation of an integrated on-line process surveillance and diagnostic system at the Halden reactor project: MOAS

C. Housiadas and **M. Antonopoulos-Domis** 983 Estimation of the moderator temperature coefficient of reactivity via noise analysis using closed-loop transfer functions

J.B. Park, Y. Hwang and **K.J. Lee** 993 Analytic solutions of radionuclide transport with the limited diffusion from the fracture into a porous rock matrix

Technical notes

K. Devan and **R.S. Keshavamurthy** 1013 Extension of rational approximation method to p-wave collision amplitudes in Reich–Moore resonance formalism

J. Su and **R.M. Cotta** 1019 Improved lumped parameter formulation for simplified LWR thermohydraulic analysis

F. Anli 1033 Spectral Greens function method for neutron transport: isotropic, forward, and backward scattering in 1-D slab geometry

1043 Book review

NUMBER 11

M.M.R. Williams 1045 A tribute to Professor Marzio Marseguerra on the occasion of his 70th birthday

S.T. Khericha 1049 Development of two-energy group, two-dimensional, frequency dependent detector adjoint function based on the nodal method

I.S. Kim 1069 Human reliability analysis in the man–machine interface design review

A. Netchaev, H. Endo, T. Sawada and **H. Ninokata** 1083 The concept and neutronic characteristics of a multipurpose fast reactor (MPFR)

S.G. Hong and **N.Z. Cho** 1101 The infinite medium Greens function method for multigroup discrete ordinates transport problems in multi-layered slab geometry

C.S. Jang, H.J. Shim and **C.H. Kim** 1115 Optimization layer by layer networks for in-core fuel management optimization computations in PWRs

C. Martins do Amaral and **A.S. Martinez** 1133 The effect of scattering interference term on the practical width

Technical note

J. Tian 1145 Economic feasibility of heat supply from simple and safe nuclear plants

1151 Book review

NUMBER 12

1153 Notice to contributors from Korea

M.M.R. Williams 1155 Nuclear reactor theory in Canada 1943–1946

J.M.G. Fell and **G. Volkoff** 1157 Capture of neutrons by cylindrical absorbing rods placed around a pile

H. Sakane, Y. Kasugai, M. Shibata, T. Iida, A. Takahashi, T. Fukahori and **K. Kawade** 1175 Measurement of activation cross-sections for (n,2n) reactions producing short-lived nuclei in the energy range between 13.4 and 14.9 MeV

A. Gandini 1193 HGPT based sensitivity time-dependent methods for the analysis of subcritical systems

M. Ceceñas-Falcón and **R.M. Edwards** 1219 Application of a reduced order model to BWR corewide stability analysis

J.H. Park, Y.H. Jeong, W.-P. Baek and **S.H. Chang** 1237 An assessment methodology for in-vessel corium retention by external reactor vessel cooling during severe accidents in PWRs

T.J. Downar and **H.G. Joo** 1251 A preconditioned Krylov method for solution of the multi-dimensional, two fluid hydrodynamics equations

NUMBER 13

1269 Notice to contributors from Korea

G. Lapenta, P. Ravetto, M.M. Rostagno, R. Jacqmin, F. Malvagi and **G. Rimpault** 1271 Neutron transport problems in anisotropic media

J.D. Lewins 1287 An explicit solution for a renewal process with waiting time and its variational principle

Y. Wang, Z. Luo, F. Li and **W. Liu** 1313 An algorithm of higher-order perturbation variables satisfying the additivity for system operators

W. Hongchun 1329 Pressurized water reactor reloading optimization using genetic algorithms

U. Rohde 1343 The modeling of fuel rod behaviour under RIA conditions in the code DYN3D

Technical note

M. Adib, K. Naguib and **H.N. Morcos** 1365 Build-up of actinides in irradiated fuel rods of the ET-RR-1 reactor

NUMBER 14

R. van Geemert and **J.E. Hoogenboom** 1377 Development of parallellized higher-order generalized depletion perturbation theory for application in equilibrium cycle optimization

S. Şahin and **H. Mehmet Şahin** 1413 Optimization of the radiation shielding mass for the magnet coils of the VISTA spacecraft

K.S. Choi, K.J. Lee and **B.W. Lee** 1431 Determining the value of reductions in radiation risk using the contingent valuation method

T.H.J.J. van der Hagen 1447 The influence of direct energy deposition on BWR stability

T. Sawada 1457 Computational modeling and verification for hexcan wall failure under simulated core disruptive accident condition

J.S. Cassell 1469 Analytic solution of algebraic equations

Technical note

S.B. Degweker 1477 Accelerator driven energy production: a comment

NUMBER 15

K. Drozdowicz, B. Gabańska, E. Krynicka and **U. Woźnicka** 1485 Influence of the grain size on the effective absorption cross-section of thermal neutrons in a medium containing highly absorbing centres

C.J. Park and **N.Z. Cho** 1499 A linear multiple balance method with high order accuracy for discrete ordinates neutron transport equations

J.L. Muñoz-Cobo, Y. Rugama, T.E. Valentine, J.T. Mihalczo and **R.B. Perez** 1519 Subcritical reactivity monitoring in accelerator driven systems

G. Kim, Y. Lee, I.S. Ko, M.-H. Cho, W. Namkung, D. Lee, H. Kim, Y. Kim, T.-I. Ro, Y. Min, J. Moon, M. Igashira, S. Mizuno, T. Ohsaki and **S.Y. Lee** 1549 Measurement of keV-neutron capture cross-sections for ^{164}Dy

A.D. Caldeira and **R.D.M. Garcia** 1563 On criticality calculations in multislab geometry

NUMBER 16

G. Házi, G. Mayer, I. Farkas, P. Makovi and **A.A. El-Kafas** 1583 Simulation of a small loss of coolant accident by using RETINA V1.0D code

Z. Kuang, I. Pázsit and **A. Ruhe** 1595 Calculating reactor transfer functions by Padé approximation via Lanczos algorithm

Yu.N. Pepyolyshev and **A.K. Popov** 1613 Control of reactor pulses by external neutron injection

C.H. Pyeon, T. Misawa, S. Shiroya and **Y. Yamane** 1625 Relationship between flux tilt in two-energy-group and eigenvalue separation

G. Vladuca and **A. Tudora** 1643 Prompt fission neutron spectrum calculations for $n + {}^{238}U$ reaction using the multi-modal model

G. Vladuca and **A. Tudora** 1653 Prompt fission neutron multiplicity and spectrum evaluations for $n + {}^{238}U$ reaction

C. Martín del Campo, J.L. François and **H.A. López** 1667 AXIAL: a system for boiling water reactor fuel assembly axial optimization using genetic algorithms

NUMBER 17

M.-H. Chun and **K.-W. Seo** 1683 An experimental study and assessment of existing friction factor correlations for wire-wrapped fuel assemblies

S.N. Jahshan and **R.C. Singleterry** 1697 The effect of stochastic perturbation of fuel distribution on the criticality of a one speed reactor and the development of multi-material multinomial line statistics

A. Netchaev, Y. Hizume, H. Endo, T. Sawada and **H. Ninokata** 1717 Safety characteristics of the multipurpose fast reactor (MPFR)

M. Iqbal, T. Mehmood, S.K. Ayazuddin, A. Salahuddin and **S. Pervez** 1733 A comparative study to investigate burnup in research reactor fuel using two independent experimental methods

A.B. Smith 1745 Fast-neutrons incident on holmium

G. Lapenta, F. Mattioda and **P. Ravetto** 1759 Point kinetic model for fluid fuel systems

K. Mourtzanos, C. Housiadas and **M. Antonopoulos-Domis** 1773 Calculation of the moderator temperature coefficient of reactivity for water moderated reactors

1783 Book review

NUMBER 18

M.B. Setiawan and **A. Kitamoto** 1789 Study on multi-recycle transmutation of LLFP in light water reactor

M. Marseguerra, E. Patelli and **E. Zio** 1799 Groundwater contaminant transport in presence of colloids II: sensitivity and uncertainty analysis on literature case studies

E.W. Larsen and **C. Ahrens** 1809 The Greuling–Goertzel and Wigner approximations in the theory of neutron slowing down

H. Yapıcı, O. İpek and **V. Özceyhan** 1825 Temperature distribution in nuclear fuel rod and variation of the neutronic performance parameters in (D–T) driven hybrid reactor system

T.S. Palmer 1851 Discretizing the diffusion equation on unstructured polygonal meshes in two dimensions